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AUTHOR Serow, Robert C.; And Others
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ABSTRACT

This study reports on attempts to determine whether the remedial instruction provided to high school students who failed one or both sections of the North Carolina Competency Test have resulted in improved performance on subsequent tests. Separate data were gathered for three semesters: Fall 1978, Spring 1979, and Fall 1979. Information was provided on the average amount of weekly remediation offered to pupils, and the type of instructional format used (individual, large group, etc.). Background on students' race, sex, handicap, and parents' education was also provided. Results indicate that remedial instruction cannot be expected to produce broadly-based gains in students' Competency Test performances. Its effectiveness is likely to be influenced by some combination of factors which include subject area, instructional format, volume of remediation, pupil race and exceptionality, and the semester in which remediation is offered. If remediation in the later stages of the test program is to be effective, it should be intensive and offered individually or in very small groups. (JD)

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Competency Testing in North Carolina:

Remediation and Subsequent Test Performances

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Robert C. Serow
Charles P. O'Neal
Nell G. Barnes

North Carolina State University

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One of the major goals of Competency Testing is the enhancement of students' academic achievements. To some extent, it is hoped that the test will in itself provide an incentive for improved performance, insofar as test failure carries relatively severe sanctions (i.e., retention in grade or, more typically, denial of high school diplomas). However, the primary academic value of Competency evaluations lies in their potential for identifying students' deficiencies in the subject areas tested, usually reading and math. Thus, by diagnosing academic problems and by providing appropriate remedial instruction, it is hoped that Competency Tests will improve the skill levels of individual pupils and raise the overall quality of education (Hart, 1978; Haney and Madaus, 1978).

These expectations are at the heart of the North Carolina Competency Testing program. In establishing competency in "those skills and that knowledge necessary to function independently and successfully in assuming the responsibilities of citizenship" as a condition for high school graduation, the General Assembly also provided that "students who fail to attain the required minimum standard for graduation in the eleventh grade shall be given remedial instruction and additional opportunities to take the test up to and including the last month of the twelfth grade" (House Bill 204, Chapter 522). Clearly, therefore, much of the success of Competency Test programs in North Carolina and elsewhere will depend on the effectiveness of remediation in improving the performance levels of pupils who are unable to pass the test on their first attempt. Up to now, however, little if any data have been reported on the outcomes of Competency remediation. Accordingly, some observers have suggested that the expected

academic benefits of these programs might be a case of wishful thinking or "hyperrationalization" (Wise, 1978).

The present paper reports findings from one of the first assessments of Competency remediation which has been undertaken in the United States. In essence, the part of the study which is reported here attempts to determine whether the remedial instruction provided to students who failed one or both sections of the North Carolina Competency Test has resulted in improved performance on subsequent tests. As will be seen however, the findings are such that few unqualified conclusions about the effectiveness of remediation are warranted.

Procedures

Beginning in early 1979, information was collected on the first cohort required to participate in the Competency Test program - the high school class of 1980. Separate data were gathered for three semesters: Fall 1978, Spring 1979, and Fall 1979. In each participating school, staff members provided information on the average amount of weekly remediation offered to pupils, and the type of instructional format utilized (individual, large group, etc.) Additionally, the State Department of Public Instruction made available copies of its tape listing student background characteristics (race, sex, handicap, parents' education) as well as students' scores on each Competency Test.

The sample for this part of the study consisted of nearly 1800 pupils in four counties in eastern North Carolina. While the sociodemographic profile of this sample appears to be broadly representative of the state-wide test-taking population, generalizability may be limited by the

narrow geographic region from which the sample was drawn, and by the decidedly rural character of three of the four participating districts.

Initially, we intended to utilize correlational techniques in analyzing patterns of association between remedial variables and subsequent Competency performances. However, very few of these relationships have the linear properties required for correlational analysis. Therefore, all data are presented in descriptive, cross-tabular formats.

Findings

To simplify presentation of results, we will first consider the overall relationship between the intensity of remediation and subsequent test performances, and then break these patterns down by student background. Finally, a brief look at the effectiveness of different remedial formats is also included.

Amount of Remediation and subsequent Test Performance

Although the major remedial effort was not initiated until Spring 1979, some schools were making extra instruction available to students during Fall 1978, presumably in anticipation of the upcoming test. Data relating the amount of remediation provided in each subject (i.e., reading and math) to students' performance on each section of the first Competency Test (CT 1) are presented in Table 1.

The obvious conclusion is that early remediation was not effective, in that non-remediated pupils did much better on the first test than did those who received extra instruction. However, it can be assumed that this early remediation was in large part anticipatory - aimed at

Table 1 here

those pupils deemed to be in greatest need of extra help. What Table 1 suggests therefore is that teachers and counselors were quite accurate in identifying those students who would have trouble with CT 1. (On the other hand, the possibility of a "self-fulfilling prophecy" should also be considered. No data are presently available on this issue, but for some pupils, particularly those who are most sensitive to testing and evaluation, pre-selection for special instructional attention may have triggered an essentially negative reaction, perhaps in the form of heightened anxiety and lowered self-confidence.)

A better basis for assessing the value of the "official," state-sponsored remediation is provided in Tables 2 and 3. In Spring 1979, extra help was offered to pupils who had failed CT 1. As can be seen in Table 2, this instruction generally appears to have paid some dividends. In math, both levels of remediation are associated with higher passing rates on CT 2, while only intensive reading remediation seems to have any impact. Quite a different pattern, however, obtains for Fall 1979. Noteworthy here is the more successful performance of non-remediated pupils, and the particularly weak showing of those who received a moderate level of extra instruction. Any explanation of this rather dramatic change should emphasize the relatively small size of Fall 1979/CT 3 sample, as well as the likelihood that this group differed from the earlier samples in some important respect. To explore this possibility, we compared the sociodemographic profile of pupils remediated in Spring 1979 with that of the CT 2-failers who also received remedial help in the Fall of that year. While these differences are described

Tables 2 and 3 here

in detail elsewhere (Serow, Barnes, and O'Neal, 1980), the clearest difference was the greater proportions of non-whites and handicapped students in the Fall 1979 sample. Accordingly, the possibility of an interaction between these background characteristics and the effectiveness of remediation is worth a closer look.

Remediation and student background

Race. Tables 4 and 5 compare the passing rates of black and white pupils exposed to varying degrees of remediation. (Due to the very small numbers of Indians and "others" included in these samples, Tables 4 and 5 list cases only for blacks (B) and whites (W).) During the Spring term, math remediation worked fairly well for black students, but not for whites, while the opposite is true for reading remediation. In addition, the generally negative pattern described previously for the Fall 1979 tests reappears in Table 5 for both groups. On the whole, then, the effectiveness of remediation does not seem to be differentiated according to race.

Tables 4 and 5 here

Handicap. In its test records, the State of North Carolina identifies six categories of exceptionality within the test-taking population: visual, hearing, educable mentally handicapped, learning disabled, multiply handicapped, and "other." While each of these conditions could conceivably affect test performance in a different way, our major interest here is in the overall effectiveness of remediation for handicapped, as opposed to non-handicapped, pupils. Consequently, Tables 6 and 7 utilize a simple dichotomous format for data presentation.

Tables 6 and 7 here

For the most part, the pattern described in the previous section also applies to the comparative performance levels of handicapped and normal pupils exposed to varying degrees of remediation. That is, extra help in reading in Spring is directly associated with performance gains for the handicapped, but not for normals, while the reverse is true for Math. Among the relatively few students taking the Fall 1979 Test (CT 3), non-remedials generally outperform those who were remediated. An exception is the reading scores of the handicapped, where the only pupils to pass were two individuals who were intensively remediated. Also noteworthy is the very weak performance of moderately remediated students in both subject areas.

Remedial Formats

In our search for factors which might be associated with successful performance on Competency re-examinations, we also considered the possibility that the type of instructional format used in remedial sessions might be of some importance. In general, the expectation was that the smaller the remedial group, the more productive the instruction.

As shown in Table 8, this hypothesis received some support: Pupils who were individually remediated usually did better than those in groups; small-group students in turn exceeded those who were remediated in larger groups. Combined formats worked well in Spring but not in Fall.

Table 8 here

Discussion

These findings may provide a few clues as to what can be expected of the Competency Test program in North Carolina and perhaps in other states as well. Most generally, our data indicate that a cautious, tempered view of remediation is warranted. Clearly, remedial instruction

of the type described here can not be expected to produce broadly-based gains in students' Competency Test performances. Instead, its effectiveness is likely to be influenced by some combination of factors which include the subject area, instructional format, volume of remediation, pupil race and exceptionality, and the semester in which remediation is offered. The last point seems especially important. The extra help offered immediately following CT 1 appears to have been more effective than remediation provided in Fall 1979, following the second test. Note, for instance, in Tables 2 through 8 that remediated pupils typically outperformed non-remedials on CT 2, while the opposite pattern obtains on CT 3. Doubtlessly, this is due in large measure to the characteristics of the students themselves. As mentioned previously, repeated test failers are different from those who failed only on their initial attempt. Of particular significance is the over-representation of handicapped pupils among the CT-2 failers/Fall 1979 remedial sample. (See Table 7.) It is quite evident that if remediation in the latter stages of the test program is to be effective, it should be intensive (on the order of at least five hours per subject per week) and offered individually or in very small groups. While this approach may not be economically efficient, insofar as the great majority of pupils fail the third Competency Test regardless of the volume or type of remediation they receive, it does seem to benefit more students than do the less expensive remedial alternatives.

One question which remains unanswered concerns the surprising proportion of CT-2 failers who received no remediation during the Fall of 1979. As indicated in Table 3, this group did much better on CT 3 than did either the moderates or intensives. The assumption that the non-remedials

were somewhat different from other test-failers was not borne out in a separate examination of the sociodemographic and academic characteristics of both groups (Serow, Barnes, and O'Neal, 1980). Thus, with respect to race, handicap, prior class grades, and earlier Competency Test scores, those students who were not remediated in Fall 1979 were not found to be substantially different from those who were. This issue underscores the needs for a continued and even expanded study of Competency Testing. If these programs are to become permanent fixtures in the education of students in North Carolina and elsewhere, it is essential that we gain a clearer understanding of how they work, how they do not work, and what must be done to improve them.

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Table 1: Amount of Early Remediation and CT 1 Performances:

Average Weekly Remediation in each subject:	% Passing: Reading	% Passing: Math	N* Reading	N* Math
None	93	88	1392	1351
Moderate (App. 1-4 hours)	25	16	65	70
Intensive (5+ hours)	9	1	80	115
TOTAL	86	79	1537	1536

* Number of test-takers

Table 2: Amount of Remediation in Spring 1979 and CT Performances.

Average Weekly Remediation in each subject:	% Passing		N*	
	Reading	Math	Reading	Math
None	44	50	45	48
Moderate	44	60	105	126
Intensive	54	63	48	119
TOTAL	46	59	198	293

Table 3: Amount of Remediation in Fall 1979 and CT 3 Performances.

Average Weekly Remediation in each subject:	% Passing		N*	
	Reading	Math	Reading	Math
None	53	38	19	21
Moderate	8	0	24	25
Intensive	28	23	40	48
TOTAL	28	20	83	94

* Number of test-takers

Table 4: Amount of Remediation in Spring 1979 and CT 2 Performances, by Race.

Average Weekly Remediation in each subject:	% Passing		N*	
	Reading	Math	Reading	Math
	B/W	B/W	B/W	B/W
None	45/40	39/75	33/10	31/16
Moderate	37/71	52/86	78/21	92/28
Intensive	48/71	58/71	33/14	69/42
TOTAL	42/64	52/77	144/45	192/86

Table 5: Amount of Remediation in Fall 1979 and CT 3 Performances, by Race

Average Weekly Remediation in each subject:	% Passing		N*	
	Reading	Math	Reading	Math
	B/W	B/W	B/W	B/W
None	53/50	35/67	17/2	17/3
Moderate	5/33	0/0	20/3	21/3
Intensive	22/22	15/36	27/9	34/11
TOTAL	25/29	15/35	64/14	72/17

* Number of test-takers

Table 6: Amount of Remediation in Spring 1979 and CT 2 Performances, by Exceptionality

Average Weekly Remediation in each subject:	% Passing		N*	
	Reading	Math	Reading	Math
	H/NH	H/NH	H/NH	H/NH
None	9/58	10/59	11/33	10/37
Moderate	15/53	21/71	27/75	29/92
Intensive	33/64	14/74	15/33	21/96
TOTAL	19/57	17/70	53/141	60/225

Table 7: Amount of Remediation in Fall 1979 and CT 3 Performances, by Exceptionality

Average Weekly Remediation in each subject:	% Passing		N*	
	Reading	Math	Reading	Math
	H/NH	H/NH	H/NH	H/NH
None	0/71	40/38	4/14	5/16
Moderate	0/22	0/0	15/9	16/9
Intensive	17/32	21/24	12/28	14/33
TOTAL	6/41	14/24	31/51	35/58

* Number of test-takers

Table 8: Remedial Format and Subsequent CT Performance

	% Passing	
	Reading	Math
	CT 2/CT 3	CT 2/ CT 3
Format:		
Individual	50/37	72/23
Small group (1-4 pupils)	53/23	56/18
Large group (5 or more)	0/0	22/0
Combination	47/0	54/8
Other	0/20	0/0
None	44/53	50/38
TOTAL	46/28	59/21

* Number of test-takers